

REMARKS

Claims 1-9 and 11-21 are now pending in the application. The Examiner is respectfully requested to cancel claims 14-18 without prejudice or disclaimer of the subject matter contained therein. Applicant also requests addition of new claims 22-35, which are fully supported in the specification as originally filed at page 3, line 7 – page 4, line 20, and claims 1-9 and 11-13. New claims 22-35 essentially recite subject matter of the previously filed claims 19-21, 2-9, and 11-13, with all dependent claims of the new set including subject matter recited in claim 22. Since claim 22 essentially recites the subject matter of the previously filed claim 19, and since the Examiner indicated that claim 19 would be allowable if rewritten in independent form, claims 22-35 should be in condition for allowance. Also, Applicant requests addition of new claim 36, which essentially recites subject matter of previously presented claim 21 in independent form. Since the Examiner indicated that claim 21 would be allowable if rewritten in independent form, claim 36 should be in condition for allowance. Further, Applicant has amended claim 1 to essentially recite limitations implied by its dependent claim 21. The principle difference between claim 1 as amended and claim 21 is that claim 1 as amended explicitly allows for the possibility that one or more additional channels may be present without complementary embedding of each set of authentication data in every channel. In contrast, it was unclear whether claim 21 would permit a multimedia stream of three media channels to be defined as two synchronized multimedia streams, one with two channels and the other with one channel. Accordingly, the amendment to claim 1 seeks clarification of this issue. Applicant requests the Examiner reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 102

Claims 1-4, 6-7, and 11-18 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Manjunath et al. (U.S. Pat. No. 6,332,030). This rejection is respectfully traversed.

Manjunath et al. is generally directed toward embedding and extracting digital data images in video. At every point, Manjunath et al. teaches embedding authentication data in the video channel of the multimedia signal, and not in the audio channel or text channel. At one point, Manjunath et al. teaches embedding both image and speech authentication data in the video channel (Abstract, Column 4, lines 18-36). However, the Examiner appears to misunderstand the reference, and refers at various points to “host data” or “images” as one media channel, “compressed video” as another media channel, and “audio/visual bit streams” as yet another media channel. Nevertheless, the “audio/visual bit stream” is the multimedia stream, the “compressed video” is one channel of that stream, and the “images” are individual frames of the video channel. Accordingly, authentication data representing the video data stream is not hidden in the audio data stream, and a recipient would not be able to detect replacement of the video channel. Thus, Manjunath et al. does not teach hiding authentication data representing one data channel in another data channel, and vice versa, to enable cross verification between channels.

Applicant’s claimed invention is generally directed toward data hiding in digital multimedia. In particular, Applicant’s claimed invention is directed toward hiding data from at least two media channels of a multimedia data stream in one another and themselves to permit individualized verification (in case the channels are separated) as

well as cross-verification. In one example, a video stream has a video channel, an audio channel, and a text channel. Video and audio authentication data are hidden in the text channel, audio and text authentication data are hidden in the video channel, and video and text authentication data are hidden in the audio channel. Independent claim 1, especially as amended, recites “hiding the first set of authentication data in the first media channel and the second media channel; and hiding the second authentication data in the first media channel and the second media channel.” Support for the amendment may be found in the specification as originally filed at page 3, line 7 – page 4, line 20.

Accordingly, Applicant respectfully requests the Examiner reconsider and withdraw the rejection of claim 1 on these grounds, along with rejection on these grounds of all claims dependent therefrom.

Claims 1 and 5-9 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Numao et al. (U.S. Pat. No. 6,512,835). This rejection is respectfully traversed.

Numao et al. is generally directed toward data hiding and extraction methods. In particular, Numao et al. is directed toward scattering hidden data in image or sound with an array of pointers to the scatter locations. Thus, Numao et al. does not teach hiding authentication data representing one data channel in another data channel, and vice versa, to enable cross verification between channels, and the Examiner does not rely on Numao et al. in this capacity.

Applicant’s claimed invention is generally directed toward data hiding in digital multimedia. In particular, Applicant’s claimed invention is directed toward hiding data from at least two media channels of a multimedia data stream in one another and

themselves to permit individualized verification (in case the channels are separated) as well as cross-verification. In one example, a video stream has a video channel, an audio channel, and a text channel. Video and audio authentication data are hidden in the text channel, audio and text authentication data are hidden in the video channel, and video and text authentication data are hidden in the audio channel. Independent claim 1, especially as amended, recites “hiding the first set of authentication data in the first media channel and the second media channel; and hiding the second authentication data in the first media channel and the second media channel.” Support for the amendment may be found in the specification as originally filed at page 3, line 7 – page 4, line 20.

Accordingly, Applicant respectfully requests the Examiner reconsider and withdraw the rejection of claim 1 on these grounds, along with rejection on these grounds of all claims dependent therefrom.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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